

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

1. (currently amended) A process for making a chalcogenide glass comprising:
disposing an arsenic monochalcogenide and at least one chalcogenide selected from the group consisting of sulfur, selenium, tellurium and mixtures thereof, at a hot section of an open distillation system;
distilling under vacuum in the open distillation system the arsenic monochalcogenide and the at least one chalcogenide so that ~~the distilled~~ arsenic monochalcogenide and ~~the distilled~~ at least one chalcogenide are deposited at a cold section of the open distillation system;
sealing the open distillation system; and
reacting and homogenizing the distilled arsenic monochalcogenide and ~~the distilled~~ at least one chalcogenide while a transformation from crystalline state to glassy state takes place.
2. (previously presented) The process of claim 1 wherein the open distillation system is an elongated glass receptacle with an open end adjacent the cold section.
3. (previously presented) The process of claim 1 wherein the distilling of the arsenic monochalcogenide and the at least one chalcogenide comprises depositing arsenic monochalcogenide precursor and at least one chalcogenide in solid form at the cold section of the open distillation system.
4. (previously presented) The process of claim 3 wherein the reacting and homogenizing of the arsenic monochalcogenide and the at least one chalcogenide is conducted at a temperature above 550°C whereby the chalcogenide glass is formed.
5. (previously presented) The process of claim 1 wherein the distilling of the arsenic monochalcogenide and the at least one chalcogenide is carried out at a temperature below 550°C.

6. (previously presented) The process of claim 1, further comprising:
reacting arsenic and the chalcogenide of the arsenic monochalcogenide to form the
arsenic monochalcogenide.
7. (previously presented) The process of claim 6 wherein the reacting of the arsenic and the
chalcogenide of the arsenic monochalcogenide is carried out at a temperature of 300°C to
450°C.
8. (previously presented) The process of claim 1, further comprising:
distilling an unpurified arsenic monochalcogenide in an open glass receptacle to form the
arsenic monochalcogenide; and
homogenizing the arsenic monochalcogenide.
9. (previously presented) The process of claim 8 wherein the distilling of the unpurified
arsenic monochalcogenide is carried out at a distillation rate of at least about 65.6×10^{-3}
 $\text{g/cm}^2\text{-sec}$.
10. (previously presented) The process of claim 1 wherein the hot section and the cold
section comprise glass.
11. (previously presented) A process for making arsenic sulfide glass comprising:
placing arsenic monosulfide in a glass receptacle;
distilling under vacuum the arsenic monosulfide to make purified arsenic monosulfide;
homogenizing the purified arsenic monosulfide;
adding sulfur to the purified arsenic monosulfide;
distilling under vacuum in an open distillation system the purified arsenic monosulfide
with the sulfur to form distilled arsenic monosulfide and sulfur;
sealing the open distillation system; and
reacting and homogenizing the distilled arsenic monosulfide and sulfur to form the
arsenic sulfide glass.

12. (previously presented) The process of claim 11;
wherein the distilling of the arsenic monosulfide and the sulfur is carried out at a distillation rate of $500-1500 \times 10^{-3} \text{ g/cm}^2\text{-sec}$; and
wherein the reacting and homogenizing of the distilled arsenic monosulfide and sulfur results in the arsenic sulfide glass having uniform color.
13. (previously presented) The process of claim 12 wherein the distilling of the arsenic monosulfide and the sulfur is carried out at a distillation rate of about above $900 \times 10^{-3} \text{ g/cm}^2\text{-sec}$.
14. (previously presented) The process of claim 1 wherein the distilling of the arsenic monochalcogenide and the at least one chalcogenide is carried out at a distillation rate in excess of about $900 \times 10^{-3} \text{ g/cm}^2\text{-sec}$.
15. (previously presented) The process of claim 12 wherein the reacting and homogenizing of the distilled arsenic monosulfide and sulfur is carried out by heating the distilled arsenic monosulfide and sulfur at a temperature above about 450°C until the color of the arsenic sulfide glass becomes uniform.
16. (previously presented) The process of claim 12, further comprising:
reacting arsenic and sulfur to form arsenic monosulfide.
17. (previously presented) The process of claim 16 wherein the reacting of arsenic and sulfur is carried out at a temperature of about 350°C to about 450°C until arsenic monosulfide is formed.
18. (withdrawn) The arsenic chalcogenide glass prepared by the process of claim 1.
19. (withdrawn) The arsenic sulfide glass prepared by the process of claim 13;
wherein the molar concentration of arsenic and sulfur varies from As_7S_{93} to $\text{As}_{40}\text{S}_{60}$; and
wherein the optical loss of the arsenic sulfide glass is about 30 dB/km or lower.

20. (new) The process of claim 11, wherein the distilling of the arsenic monosulfide and the sulfur is carried out at a temperature below 550°C.